

## ABSTRACT OF THE DISCLOSURE

A method and system for automatic allocation of port addresses in a network is provided. The node performs a self-discovery after initial power-up, and for each port on the node, using unique values associated with the port in the network hierarchy, applies a function that allows for an inverse function to the set of values to generate a default unique address for the port. A typical hierarchical structure in a network is the network area, node, and, within the node, the shelf, the card and the port. Next, the node sends a frame including the default port address and node identifier, from the port to a connected node. The node polls the port for a frame with network information associated with the connected port on the other node. If a frame is received from the other node, the node applies a logical condition to the default and received port addresses, and, if the condition is satisfied, applies another function to the received port address to generate a new unique address for the port, and maintains the new port address within the node. The method is described for IP networks but can be equally applied to ATM or Frame Relay networks, and for any nodes that support Sub-network Access Protocol (SNAP).